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Case Report
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Myoclonic Epilepsy and Polyneuropathy in Critically Ill Patients Secondary to Complications from COVID-19: Report of a Case of Disability

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Abstract

A clinical case of epileptic (myoclonic) seizures and polyneuropathy of the critically ill secondary to COVID-19 infection that caused severe functional alterations, loss of quality of life, loss of potentially productive years and a state of disability is presented.

Introduction

The infection by the SARS-CoV-2 virus has caused repercussions on the physical and mental health of workers, with a negative impact on health systems, the economy, and socio-labor environments worldwide [1]. On a physical level it causes predominantly respiratory symptoms, however it also presents vascular, gastrointestinal, hepatic and neurological alterations [2]. The neuroinvasive capacity of COVID-19 occurs predominantly in severe disease where those affected have comorbidities and in atypical presentations of the disease. The neurological manifestations in patients with severe COVID-19 can be; encephalitis, meningitis, acute disseminated encephalomyelitis, myelitis, and encephalopathy. At the peripheral nervous system level, it manifests with anosmia and ageusia, Guillain-Barre syndrome, rhabdomyolysis, myopathies and polyneuropathies, at the cerebrovascular level; hemorrhages and cerebral infarcts [3-5]. COVID-19 encephalopathy is a condition associated with severe hypoxia, metabolic, toxic and sometimes drug use disorders [6]. Muscle-peripheral damage is attributed to necrosis and/or atrophy and motor-sensory axonal degeneration due to acute denervation, which causes myopathy of the critical patient or steroid myopathy, epileptic seizures are associated with multiple causes such as fever, hypoxia, hydroelectrolyte and metabolic alterations, being considered as a negative prognostic factor for some authors [7-9]. The damage mechanisms of complex cases with short and long-term pathological consequences that have caused irreversible injuries and a state of disability are currently under study, so its scope and frequency has not been possible to determine.

Case Presentation

A 47-year-old male, Mexican, single, with no history of diabetes, hypertension, immunosuppression, chronic respiratory disease, or musculoskeletal disorders. His symptoms began on July 20th, 2020, sudden and progressive severe dyspnea, fever, attack on the general state and drowsiness, for which he was taken by his family to the emergency service, where the diagnosis of acute respiratory distress syndrome secondary to atypical pneumonia and X-ray compatible/highly suggestive of COVID-19 (Figure 1. Posteroanterior chest X-ray), meeting the criteria to be admitted to the intensive care unit with mechanical ventilation, amines, steroids and antibiotic therapy. He required hospitalization for 2 months in the intensive care unit, with the following morbidity:

- Seizures difficult to control, which have occurred 2 to 3 times a week.
- Septic shock
- Encephalopathy and hypoxia secondary to SARS-CoV-2.
- Tracheostomy placement

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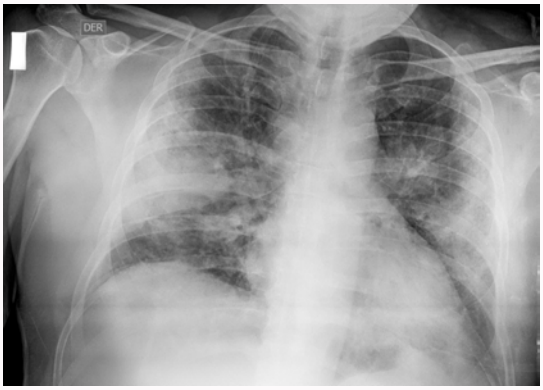

Figure 1: July 2020. Posteroanterior chest X-ray: Soft tissues without alterations, normal bony thorax, central mediastinum, cardiomegaly at the expense of the left ventricle, slight deviation of the air column from the trachea to the left, lung fields with multiple bilateral consolidations peripheral and subpleural and presence of air bronchogram with peripheral and subpleural predominance, elevation of the right hemidiaphragm without obliteration of the costophrenic or costodiaphragmatic angle with patrol diffuse interstitial alveolus.

- Critically ill polyneuropathy involving movement of the 4 limbs.

In October 2020 he is discharged from the hospital without supplemental oxygen. The Neurology department establishes a sequela phase and diagnosis of generalized seizures and polyneuropathy of the critically ill and severe depression, requiring treatment with benzodiazepines, anticonvulsants, antidepressants and psychological therapy, as well as physical rehabilitation. In December 2020, he was rehospitalized for status epilepticus, data of magnesium valproate intoxication was detected, and the dosage was adjusted with improvement in his clinical condition. In January 2021, he was assessed by the Occupational Health Service, who determined that he has a state of disability due to severe neurological disorders derived from severe COVID-19, with severe motor impairment of the 4 extremities, with poor short-term functional prognosis, total dependence to perform daily activities such as eating, washing, dressing, undressing, transporting and attending a medical care unit, with a period of temporary incapacity for work of 210 days, incompatibility to perform his job as a truck driver load, 83% loss of work capacity, loss of work capacity and 17 years of loss of productive life. Work history: He began working life at 18 years of age, as a worker for a plastic production company for 2 years, a cinema employee for 3 years, a sales assistant in a hardware store for 2 years, a truck driver for a grocery store for 13 years. Being exposed to ergonomic and physical agents, for which he requires integrity of his general state of health to carry out his activities. The work activity at the time of hospitalization was a transport truck driver, where his daily activities consist of getting to report to his manager, who indicates the routes to transport food to different cities in Mexico such as Colima, Aguascalientes, Zacatecas, San Luis Potosí, Jalisco. Before starting the routes and when finishing them, verify that the merchandise is complete, in good condition, supports the loading and unloading and makes the records in a log, working hours from Monday to Sunday from 05:00 a.m. to 10:00 p.m., with a day off. For his work activity requires: visual fixation throughout the day, prolonged sitting, repetitive movements of hands, shoulders, cervical region, feet, knees, legs, integrity of the musculoskeletal, visual and cardiorespiratory system. Residual skills are incompatible with the requirements of the current position.

Physical examination: Conscious, oriented, in a wheelchair with inability to handle it, which is why he is supported by an assistant, unable to stand, in regular general conditions, paleness, regular hydration status, cachectic, speech slow and low but understandable, cardiorespiratory without Compromise, abdomen without alterations, integral lower extremities, decreased tone and trophism, muscular strength on the 3/5 Daniels scale, presents fasciculation's in thighs, diminished osteotendinous reflexes, rest of exploration without pathological signs.

Conclusion

There are case studies of COVID-19 with complications in the critically ill, where clinical manifestations are reported; such as muscle weakness, myalgias, impaired walking, with the use of the Barthel index it was established that the clinical impact of those affected requires early detections and studies to establish early treatments, establish adequate preventive and therapeutic measures, as well as make a comprehensive neurological, neurophysiological study to obtain analytical parameters of inflammation. The patient was approached by a multidisciplinary team in a comprehensive manner and the corresponding studies were carried out to confirm the diagnosis, for which a strict control and follow-up of medical appointments will be carried out. As well as, current treatment is focused on the management of epileptic seizures, severe depression and polyneuropathy with; valproic acid, clonazepan, velafaxine, physical rehabilitation and comprehensive psychological therapy, in addition to continuing with the confinement measures in the face of the pandemic. The patient will be reassessed to determine his condition, in case of improvement there is the possibility of reincorporation to work giving medical discharge, if he does not present improvement, his disability pension will be made definitively, and that is, he will have the right to care for his entire life medical and a monthly income that is obtained by having social security.

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